UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,248	03/13/2001	Ashfaq Hossain	Hossain 2	7720

47396	7590	11/25/2005

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EXAMINER
ALI, SYED J

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/804,248	HOSSAIN, ASHFAQ
	Examiner	Art Unit
	Syed J. Ali	2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 November 2005</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-25</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in
37 CFR 1.17(e), was filed in this application after final rejection.   Since this application is
eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)
has been timely paid, the finality of the previous Office action has been withdrawn pursuant to
37 CFR 1.114. Applicant's submission filed on November 1, 2005 has been entered. Claims 1-
25 are presented for examination.

2.   The text of those sections of Title 35, U.S. code not included in this office action can be
found in a prior office action.

Response to Arguments

3.   Applicant's arguments, see pgs. 5-6 (Part I), filed November 1, 2005, with respect to the
rejection of claims 1 and 15 under 35 U.S.C. § 102 have been fully considered and are
persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration,
a new grounds of rejection is made in view of Smith et al. (USPN 5,787,235) (hereinafter Smith).

Claim Rejections - 35 USC § 103

4.   **Claims 1-10 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Smith.**

5.   As per claims 1-4, Smith teaches the invention as claimed, including a unit configured to
independently apply fuzzy logic rules to each value of sets of fuzzified network-related indicator
values (col. 4 lines 34-43; col. 5 lines 29-39, 44-49) and to generate a selection index for each set
of the sets based on results thereof (col. 4 lines 43-48; col. 5 lines 39-42), wherein the unit
comprises a programmed medium (col. 4 lines 66-67).

6.   It is noted that Smith does not specifically indicate that the unit applying fuzzy logic rules
is a load-balancing unit. Furthermore, with respect to 2-3, Smith does not specifically teach the
unit being a load balancing switch or a router. However, for purposes of determining the
obviousness of claims 1-4 over Smith, these issues are interrelated. That is, if there is a teaching,
suggestion, or motivation to implement Smith's Evidence Fusion Tool (the claimed "unit") as a
load-balancing switch or router, the claims are unpatentable over Smith.

        Smith is vague when discussing the types of physical and/or geographical characteristics
evaluated by the fuzzy logic unit (col. 5 lines 7-21). Smith notes that telecommunications and
networking were rapidly developing fields of technology at the time of invention, and the fuzzy
logic tool could be useful in a wide variety of applications (col. 6 lines 39-54). In the domain of
network computing, load balancing is a significant and well-known concern. Typical approaches
involve monitoring the load level, response time, or proximity of a network device.

Smith discloses that the fuzzy inference rules provided would be useful for monitoring a set of network sensors to make a single functional assessment (col. 5 lines 44-58; col. 6 lines 36-38). Thus, a person having ordinary skill in the art would be motivated to modify Smith to solve the load balancing problem by synthesizing indicators from a variety of network devices to make a functional assessment of which device is best suited to handle a subsequent request. Hereinafter, Smith is treated as implicitly suggesting the use of the Evidence Fusion Tool as a load balancer.

7.   As per claims 5-6, Smith teaches the invention as claimed, including the unit as in claim 1 further adapted to direct a request to a server associated with one of the generated selection indices, the server being associated with a highest selection index (col. 5 lines 44-58; col. 6 lines 28-38).

8.   As per claim 7, Smith teaches the invention as claimed, including the unit as in claim 1 wherein each of the network-related indicator values represents a dynamic operating status of a server (col. 5 lines 7-21).

9.   As per claims 8-9, Smith teaches the invention as claimed, including the unit as in claim 7 wherein the server is one of multiple servers grouped together to form a server farm for providing service for incoming requests of an Internet Service Provider and each of the sets of network-related indicator values is uniquely associated with one of the multiple servers (col. 5

lines 44-58), and wherein one of the multiple servers is selected to provide service for one of the incoming requests based on the selection index associated therewith (col. 6 lines 28-38).

10. As per claim 10, Smith does not specifically teach the invention as claimed, including the unit as in claim 8 wherein the indicator values comprise values associated with a response time, a number of active connections and a delivered throughput. However, in view of Smith's vagueness in describing the type of characteristics to be monitored and the simple scalability to apply the system for many useful purposes, "Official Notice" is taken that it would have been obvious to monitor response time, the number of active connections, and a delivered throughput, since these are well-known factors to be considered in load balancing schemes.

11. As per claims 15 and 16-21, Smith teaches the invention as claimed, including a method for selecting Internet servers able to be implemented on the load-balancing unit of claims 1 and 5-10, respectively (col. 4 lines 34-48).

Claims 11-14 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Shibata et al. (USPN 5,939,925) (hereinafter Shibata).

12.   As per claims 11-14, Shibata teaches the invention as claimed, including the unit as in claim 1 further adapted to generate an area associated with each fuzzy logic rule and an aggregate area from a combination of areas associated with the fuzzy logic rules (Abstract, col. 11 lines 35-45) and generate the selection index from a center of gravity of the aggregate area (Abstract, col. 11 lines 35-45)

13.   It would have been obvious to one of ordinary skill in the art to combine Smith and Shibata since Smith fails to explicitly detail how the selection index is arrived at. The use of fuzzy logic rules is described in general terms, with the caveat that the rules can be changed, enhanced, or redefined as needed (col. 6 lines 39-48). The "centroid" or "center of gravity" method is well established within the realm of fuzzy logic. Shibata provides a way of generating control variables, such as the claimed selection index, based on center of gravity calculations generated from fuzzy logic calculations. The "center of gravity" method would be beneficial in combination with Smith, especially in the case where multiple servers may be suitable to service a request, the best server can be found based on an aggregate of parameters.

14.   As per claims 22-25, Smith teaches the invention as claimed, including a method for selecting Internet servers able to be implemented on the load-balancing unit of claims 11-14, respectively (col. 4 lines 34-48).
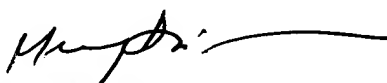
Conclusion

15.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Syed Ali
November 21, 2005

MENG-AI T. AN
SUPERVISORY PATENT
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